

## ABSTRACT

The preferred embodiment provides a 3D nanometer scale data encryption key. It consists in using 3D polymer patterns on silicon substrates as evolved, tri-dimensional barcodes. It provides several possible degrees of encryption which, together with the high technology involved, makes it virtually impossible to counterfeit. There is described the basic geometry, the process, the coding principles through such structures, and the reading principles. The preferred geometry is that of an array of lines, similar to a barcode when seen from above, with the difference that lines have dimensions in the tens of nanometer range. These lines are preferably made of a cross-linked, modified Poly(methyl methacrylate). Cross-linking by ultra-violet light gives them an exceptional mechanical durability for structures of this size.